Metadata for Theodore Roosevelt National Park, Spatial Vegetation Data: Cover type / Association level of the National Vegetation Classification System

Identification_Information:
Citation:
Citation_Information:
Originator:
Remote Sensing and GIS Group, Technical Service Center, US Bureau of Reclamation, MC-D8260, POB 25007, Denver CO 80225
Publication_Date: 2000
Title: Theodore Roosevelt NP Vegetation Database
Geospatial_Data_Presentation_Form: map
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program
Issue_Identification: Theodore Roosevelt NP
Publication_Information:
Publication_Place: Denver, CO
Publisher: USGS/BRD
Other_Citation_Details: Database created under contract to the USGS/BRD
Online_Linkage: http://biology.usgs.gov/npsveg/index.html
Online_Linkage: http://www.rsgis.do.usbr.gov
Online_Linkage: http://biology.usgs.gov/npsveg/thro/index.html#geospatial_veg_info
Description:
Abstract:
This metadata is for all coverages associated with the vegetation land cover and land use geo-spatial database for Theodore Roosevelt National Park and surrounding areas. The project is authorized as part of the USGS/NPS Vegetation Mapping Program. The program is being administered by the Biological Resources Division (BRD) of the United States Geological Survey (USGS). The USGS/BRD is responsible for overall management and oversight of all ongoing mapping efforts. This mapping effort was performed by the US Bureau of Reclamation's (USBR) Remote Sensing and GIS Group, Technical Service Center, Denver, CO. The vegetation mapping program is part of a larger Inventory and Monitoring (I&M) program started by the National Park Service (NPS) Their website is : http://www.aqd.nps.gov/nrid/im/
Purpose:
The purposes of the mapping effort are varied and include the following: Provides support for NPS Resources Management; Promotes vegetation-related research for both NPS and USGS/BRD; Provides support for NPS Planning and Compliance; Adds to the information base for NPS Interpretation; and Assists in NPS Operations. The NPS I&M goals are, among others, to map the vegetation of all national parks and monuments and provide a baseline inventory of vegetation.
Supplemental_Information:
The following vegetation and land use classes were mapped for this project: LAND USE: 51 Transportation, Communications, and Utilities; 52 Mixed Urban or Built-up Land; 53 Croplands and Pasture; 54 Seeded Mixed Grass Prairie; 55 Other Agricultural Land; 56 Streams - Rivers; 57 Reservoirs; 58 Beaches and Sandy Areas; 59 Strip Mines, Quarries, and Gravel Pits; and 60 Oil/Gas Well Drill Pads and Roads. VEGETATION: 1 Prairie Dog Town Disturbed Community; 2 Badlands Sparse Vegetation Complex; 3 Scoria Sparse Vegetation Complex; 4 Long-leaved Sagebrush Sparse Vegetation Alliance; 10 Leafy Spurge Herbaceous Alliance; 11 Canada Thistle Herbaceous Alliance; 12 Prairie Sand-reed Grass Herbaceous Alliance; 13 Priarie Cordgrass Temporarily Flooded Herbaceous Alliance; 14 Cattail - Bulrush Semi-permanently Flooded Herbaceous Alliance; 15 Little Bluestem - Sideoats Grama Herbaceous Alliance; 16 Western Wheatgrass Herbaceous Alliance; 17 Introduced Grassland Herbaceous Alliance; 18 Blue Grama Herbaceous Alliance; 30 Horizontal Juniper Dwarf Shrub Alliance; 31 Silver Sagebrush/Western Wheatgrass Shrubland; 33 Rabbitbrush Shrubland Alliance; 35 Three-leaved Sumac Shrubland Alliance; 36 Buffaloberry Shrubland Alliance; 37 Wolfberry Temporarily Flooded Shrubland Alliance; 38 Sandbar Willow Semi-permanently Flooded Shrubland Alliance; 39 Greasewood Temporarily Flooded Shrubland Alliance; 41 Cottonwood - Peachleaf Willow Floodplain Woodland; 42 Cottonwood - Rocky Mtn Juniper Floodplain Woodland; 43 Cottonwood Temporarily Flooded Woodland Alliance; 44 Green Ash - American Elm Woodland Alliance (Draws); 45 Green Ash - American Elm Temporarily Flooded Woodland Alliance; 46 Quaking Aspen Woodland Alliance; 47 Rocky Mountain

Juniper Woodland Alliance; and 48 Ponderosa Pine Woodland Alliance.
Time_Period_of_Content:
Time_Period_Information:
Multiple_Dates/Times:
Single_Date/Time:
Calendar_Date: 199607
Single_Date/Time:
Calendar_Date: 199608
Currentness_Reference: Dates of aerial photography
Status:
Progress: Complete
Maintenance_and_Update_Frequency: Unknown
Spatial_Domain:
Description_of_Geographic_Extent: Theodore Roosevelt NP and surrounding environs
Bounding_Coordinates:
West_Bounding_Coordinate: -103.75
East_Bounding_Coordinate: -103.125
North_Bounding_Coordinate: 47.75
South_Bounding_Coordinate: 46.75
Keywords:
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: Land cover
Theme_Keyword: Land use
Theme_Keyword: Vegetation
Theme_Keyword: National Park Service
Place:
Place_Keyword_Thesaurus: None
Place_Keyword: North Dakota
Place_Keyword: Theodore Roosevelt National Park
Place_Keyword: Little Missouri River
Place_Keyword: Little Missouri National Grasslands
Place_Keyword: Elkhorn Ranch
Place_Keyword: Medora
Taxonomy:
Keywords/Taxon:
Taxonomic_Keyword_Thesaurus: none
Taxonomic_Keywords: vegetation
Taxonomic_Keywords: plants
Taxonomic_Keywords: National Vegetation Classification System
Taxonomic_System:
Classification_System/Authority:
Classification_System_Citation:
Citation_Information:
Originator: Anderson, et al
Publication_Date: 1976
Title: A Land Use and Land Cover Classification System for Use with Remote Sensor Data
Geospatial_Data_Presentation_Form: document
Series_Information:
Series_Name: Geological Survey Professional Paper
Issue_Identification: No. 964
Publication_Information:
Publication_Place: Washington, DC
Publisher: US GPO
Other_Citation_Details: This project used the Level II Land Use Classes
Online_Linkage: http://biology.usgs.gov/npsveg/classification/index.html
Taxonomic_Procedures: Sequence of field test data plots, observation plots, and photo-signature observations.
General_Taxonomic_Coverage:
Refer to complete listing of mapped plant alliances/associations under Supplemental Information above.
Taxanomic_Classification:
Taxonomic_Classification:
Taxon_Rank_Name: Kingdom
Taxon_Rank_Value: Plantae
Access_Constraints: None
Use_Constraints:

Acknowledgment of the USGS/BRD and the USBR/RSGIS Group would be appreciated in products derived from these data. Any person using the information presented here should fully understand the data collection and compilation procedures, as described in the metadata, before beginning analysis. The burden for determining fitness for use lies entirely with the user.

Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Person: USGS-NPS Vegetation Mapping Program Coordinator
Contact_Organization:
USGS Biological Resources Division, Center for Biological Informatics
Contact_Address:
Address_Type: Physical Address
Address: USGS
Address: Biological Resources Division, CBI
Address: Building 810, Room 8000
City: Denver
State_or_Province: Colorado
Postal_Code: 80225-0046
Country: USA
Contact_Address:
Address_Type: Mailing Address
Address: USGS
Address: Biological Resources Division, CBI
Address: PO BOX 25046, DFC, MS302
City: Denver
State_or_Province: Colorado
Postal_Code: 80225-0046
Country: USA
Contact_Voice_Telephone: (303) 202-4220
Contact_Facsimile_Telephone: 303-202-4229
Contact_Facsimile_Telephone: 303-202-4219 (org)
Contact_Electronic_Mail_Address: gs-b-npsveg@usgs.gov
Browse_Graphic:
Browse_Graphic_File_Name: http://biology.usgs.gov/npsveg/thro/images/throveg.jpg
Browse_Graphic_File_Description: 249 Kbyte
Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
Dan Cogan, Doug Crawford, Jean Pennell, Trudy Meyer, Jim Von Loh
Native_Data_Set_Environment: UNIX-ARC/INFO

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report:
These data have an overall accuracy of 74.3% (71.3% Kappa index) within a 90% confidence interval of 70.3 to 78.3%.
Logical_Consistency_Report:
All polygon features are checked for topology and existence of label points using the ARC/INFO software. Each polygon begins and ends at the same point with the node feature. All nodes are checked for error so that there are no unintentional dangling features. There are no duplicate lines or polygons. All nodes will snap together and close polygons based on a specified tolerance. If the node is not with the tolerance it is adjusted manually. The tests for logical consistency are performed in ARC/INFO using certain commands.
Completeness_Report:
All data that can be photo-interpreted are digitized in accordance with the minimum mapping unit (MMU) of 1/2 hectare. This includes selected features that fall into the NVCS vegetation classification and the Anderson Level II land use classification. Some classes below the MMU are included such as wetlands and grasslands in badlands areas and polygons cut off by other features and borders. Roads (out to visible disturbed ground right-of-way or fence line) and streams/drainages wider than approx 10 meters were digitized as polygons and attributed accordingly. Roads visible on the orthophotos but thinner than 10 meters were digitized as lines. Wet drainages thinner than 10 meters were digitized as lines and attributed with code #14. Dry drainages thinner than 10 meters were not digitized.
Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:

USGS DOQQ's were used as the basemap for this project. The attribute accuracy stated above may also reflect horizontal positional accuracy.

Vertical_Positional_Accuracy:
Vertical_Positional_Accuracy_Report:
This database contains no vertical or elevation data.

Lineage:
Methodology:
Methodology_Type: Field
Methodology_Identifier:
Methodology_Keyword_Thesaurus: None
Methodology_Keyword: Ground Truth
Methodology_Keyword: GPS
Methodology_Keyword: Field Plot
Methodology_Keyword: National Vegetation Classification System
Methodology_Keyword: Anderson Level II
Methodology_Description:
Refer to the steps outlined in Process Description below.
Methodology_Citation:
Citation_Information:
Originator:
Remote Sensing and GIS Group, Technical Service Center, US Bureau of Reclamation, MC-D8260, POB 25007, Denver CO 80225
Publication_Date: 2000
Title: Theodore Roosevelt NP Vegetation Database
Geospatial_Data_Presentation_Form: map
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program
Issue_Identification: Theodore Roosevelt NP
Publication_Information:
Publication_Place: Denver, CO
Publisher: USGS/BRD
Other_Citation_Details: Database created under contract to the USGS/BRD
Online_Linkage: http://biology.usgs.gov/npsveg/index.html
Online_Linkage: http://www.rsgis.do.usbr.gov
Source_Information:
Source_Citation:
Citation_Information:
Originator: USGS
Publication_Date: Unknown
Title:
Digital Orthophoto Quarter Quadrangles. See other information below for list.
Geospatial_Data_Presentation_Form: remote-sensing image
Other_Citation_Details:
List of DOQQs used as basemaps for this project (text in parenthesis indicates Arc/Info coverage filename): Bear Butte (bear_bt), Belfield (belfield), Belfield SW (blfld_sw), Buckskin Butte (bkskn_bt), Buffalo Gap Campground (bufgp_cp), Chimney Buttes (chmny_bt), Eagle Draw, Gorham SE & SW (gorhm_se, gorhm_sw), Fryburg, (fryburg), Fryburg NE & NW (frybr_ne, frybr_nw), Ice Box Canyon (icebx_cn), Hanks Gully, Lone Butte (lone_bt), Lone Butte NW (ln_bt_nw), Long X Divide (longx_dv), Medora, Red Wing Creek (rdwng_cr), Roosevelt Creek East & West, Sperati Point (sprti_pt), Stocke Butte (stck_bt), Tepee Buttes (tepe_bts), Tracy Mountain (tracy_mt), Wannagan Creek East & West (wna_cr_e, wna_cr_w), Wolf Coulee (wolf_cle)
Online_Linkage: http://edc.usgs.gov/Webglis/glisbin/glismain.pl
Source_Scale_Denominator: 12000
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 1991
Ending_Date: 1995
Source_Currentness_Reference: ground condition
Source_Citation_Abbreviation: None
Source_Contribution: None
Source_Information:
Source_Citation:

Citation_Information:
Originator: USDA-FSA, Aerial Photography Field Office
Publication_Date: 199608
Title: 1:24k Color Aerial Photographs
Geospatial_Data_Presentation_Form: remote-sensing image
Series_Information:
Series_Name: Little Missouri National Grasslands
Issue_Identification: 611089
Publication_Information:
Publication_Place: P.O. Box 30010, SLC, Utah 84130
Publisher: USDA, Farm Service Agency
Other_Citation_Details: See database for photographs used.
Online_Linkage: http://www.apfo.usda.gov/
Source_Scale_Denominator: 24000
Type_of_Source_Media: photographs
Source_Time_Period_of_Content:
Time_Period_Information:
Multiple_Dates/Times:
Single_Date/Time:
Calendar_Date: 199607
Single_Date/Time:
Calendar_Date: 199608
Source_Currentness_Reference: ground condition
Source_Citation_Abbreviation: None
Source_Contribution: None
Process_Step:
Process_Description:
PHOTO INTERPRETATION: All map classes were interpreted from 1:24,000 scale, color photography flown in July & August 1996. The photographs were acquired from the USDA and were enlarged to 1:12000. Photo-interpretation used the standard identification features such as tone, texture, color, pattern, topographic position, and shadow. In addition, field sample locations and their vegetation descriptions aided in assigning map class to each polygon. Photographs were examined using a stereoscope as needed. Linework was created on mylars placed over the photos. GIS PROCEDURES: The linework on the mylar overlays were transfered into the GIS database by one of two methods, either heads-up digitizing or scanning. METHOD I: Heads-up digitizing will be used whenever the photo does not include many complicated grassland polygons as these are the most difficult to transfer using heads-up digitizing. This will usually mean photos with mostly badlands topography or agricultural lands (i.e., have boundaries that are easy to see on the digital orthophoto image) will be transferred using the heads-up method. Briefly, heads-up digitizing is a procedure whereby the operator digitizes by hand and eye on a computer terminal screen showing a digital image of an ortho-rectified photo. By looking at similar features on both the aerial photograph from which the classification was made and on the orthophoto, the line drawn on the aerial photo overlay is transferred to the digital image, which is registered to coordinates on the earth. This technique should produce good results except where there is little feature contrast on the ortho, in which case the operator must estimate the shape and location of the line work. Using this technique, a curve on the photo may appear to be a series of short, differently-angled straight line segments, since it is easier to make a curve with a pencil or pen than it is with digitized discrete points. Depending on the density of digitized points, this may or may not be a problem. The analyst may set the digitizing software to calculate a pseudo-curve of many points by inputting as few as three points to define a curve. METHOD II: Photos that are too difficult to accurately transfer via heads-up will be scanned, ie, the mylars overlays will be scanned, not the actual photos. Before the mylar is scanned, it will be marked with control points that correspond to visible points on the DOQQ. The GIS software was used to convert the scanned mylar into a geo-referenced coverage which was then attributed and combined with the larger vegetation coverage associated with the quarter quad area. The entire transfer and editing sequence was automated via in-house Arc/INFO AML programs. The final vegetation coverages consist of (1) Quarter-quad, Park, and GIS project area boundary arcs, if applicable, and (2) vegetation polygons. Linear wetland features were put in a separate coverage called 'drainage'. Another step involved heads-up digitizing of roads and railroads visible on the DOQQ in accordance with the criteria discussed above. OTHER DATA: Coverages for the plot and observation data points were created from the plot and observation data sheets. The coordinates on the data sheets were in datum NAD27. Once the coverages were finalized they were reprojected into datum NAD83. The Drainage coverage was created by taking arcs attributed with veg_code = 14 out of the vegetation coverage and 'put' into the drainage coverage.

Process_Date: 1999
Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization:
Remote Sensing and Geographic Information Group, USBR
Contact_Address:
Address_Type: mailing address
Address: P.O. Box 25007
City: Denver
State_or_Province: Colorado
Postal_Code: 80225
Country: USA
Contact_Voice_Telephone: 303-445-2267
Contact_Facsimile_Telephone: 303-445-6337
Contact_Electronic_Mail_Address: mpucherelli@do.usbr.gov
Hours_of_Service:
7:00 a.m. to 3:00 p.m. Monday Through Friday, Mountain Time

Spatial_Data_Organization_Information:
Indirect_Spatial_Reference:
Theodore Roosevelt National Park, USGS 7.5 minute quadrangle names
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Label point

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: Universal Transverse Mercator
Universal_Transverse_Mercator:
UTM_Zone_Number: 13
Transverse_Mercator:
Longitude_of_Central_Meridian: -105
Latitude_of_Projection_Origin: 0
False_Easting: 0
False_Northing: 0
Scale_Factor_at_Central_Meridian: .9996
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 1
Ordinate_Resolution: 1
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodedic Reference System 80
Semi-major_Axis: 6378137
Denominator_of_Flattening_Ratio: 298.257

Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview:
VEGETATION COVERAGES: Due to the large size of the database, vegetation coverages were named according to associated USGS 7.5m quads. Exception; the Elkhorn Ranch Unit coverage is named ranch_veg. Naming convention: <quadname>_veg# with # referring to the quarter quadrant as follows: 1 - Northwest quadrant; 2 - Northeast quadrant; 3 - Southeast quadrant; 4 - Southwest quadrant. Coding Information: Polygon coverage with labels in each polygon with the following custom items: (veg_code - 3 3 I)* coded with vegetation classification number. See Supplemental Info under Id Info above for complete listing of attribute codes and their descriptions; (photo - 6 6 I) coded with associated photo number; (location - 10 10 I) coded according to whether the polygon is in the park or environs (buffer) area; (pdog - 2 2 I) for prairie dog colonies coded with 0 (no pdog holes) or 1 (polygon has pdog holes); and (lspr - 2 2 I) for

leafy spurge coded with 0 for none and 1 for polygon has leafy spurge. These last two itens were used to show areas that were not classified as prairie dog colonies or leafy spurge but had substantial pdog use or leafy spurge; Also, each arc was coded as follows: (digtype - 2 2 I)) coded to identify how the arc was transferred into the database or type of arc as follows: 1 = heads-up, on screen digitizing; 2 = scanned mylar; 3 = arc associated with GIS project border; 4 = arc associated with quarterquad border; 5 = arc associated with park border. (veg_code - 3 3 I) linear wetland features coded with vegetation classification number. Arcs attributed class 14 were extracted and put into a separate (line) coverage named drainage. Some of the class 14 arcs remained in the _veg coverage if it also delineated a unique polygon. BOUNDARY COVERAGES: bndrypark - Park boundary coverage. This coverage was obtained from Theodore Roosevelt National Park Headquarters. bndryproj - GIS mapping project area. bndryquad - Boundaries of all the 7.5m quads. bndrygrds - Grad-sect boundaries. Coding Information: bndrypark - line coverage - no custom attributing. bndryproj - line coverage - no custom attributing. bndryquad - polygon coverage with labels in each quad polygon with the following items: (quadname - 8 8 c) - abbreviated name for each quad; (fullname - 20 20 c) - full quadname. DATA COVERAGES: dataobsv - Point coverage of observation data points. dataplot - Point coverage of plot data points. Coding Information: Label points with items as follows: (plot_code - 3 3 n) coded with plot number from plot data sheets; (veg_code - 14 14 c) coded with veg class text; (type - 10 10 c) coded with broad vegetation class (eg: woodland). Note1: x-coord and y-coord added with ARC/INFO "addxy" command. Note2: Field data points were collected with GPS units set to datum NAD27. All coverages were re-projected into Datum NAD83 so the x- y-coordinates will not match those shown on the data sheets. OTHER COVERAGES: sec_roads - Line coverage of secondary roads digitized from USGS DOQQ. railroads - Line coverage of railroads digitized from USGS DOQQ. The parks projects will be using DOQQ's as the basemap for transfer of information from the photos to the GIS database. The DOQQ's are standard USGS product and are in datum of NAD83. (*) Item definition in the arc/info database.

Entity_and_Attribute_Detail_Citation:
Theodore Roosevelt National Park, USGS/NPS Vegetation Mapping Program, Techincial Memorandum No. 8260-00-04, USBR

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: USGS-NPS Vegetation Mapping Program Coordinator
Contact_Organization: Center For Biological Informatics, USGS/BRD
Contact_Address:
Address_Type: mailing address
Address: P.O. Box 24046, MS-302
City: Denver
State_or_Province: Colorado
Postal_Code: 80225
Country: USA
Contact_Voice_Telephone: 303-202-4259
Contact_Facsimile_Telephone: 303-202-4229
Contact_Facsimile_Telephone: 303-202-4219 (org)
Contact_Electronic_Mail_Address: gs-b-npsveg@usgs.gov
Hours_of_Service: 7:30am to 4:00 pm Mon-Fri, Mountain Time
Resource_Description: Theodore Roosevelt National Park Vegetation Maps
Distribution_Liability:
Although these data have been processed successfully on a computer system at the U.S. Geological Survey, no warranty expressed or implied is made regarding the accuracy or utility of the data on any other system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data. It is strongly recommended that these data are directly acquired from a U.S. Geological Survey server, and not indirectly through other sources which may have changed the data in some way. It is also strongly recommended that careful attention be paid to the contents of the metadata file associated with these data. The U.S. Geological Survey shall not be held liable for improper or incorrect use of the data described and/or contained herein.
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: ARC/INFO
Digital_Transfer_Option:
Offline_Option:

Offline_Media: CD-ROM
Recording_Format: ISO 9660
Fees: Media, Shipping, and Handling
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: HTML
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://biology.usgs.gov/npsveg/thro/index.html#geospatial_veg_info
Fees: None

Metadata_Reference_Information:
Metadata_Date: 200001
Metadata_Review_Date: 20060906
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: USGS-NPS Vegetation Mapping Program Coordinator
Contact_Address:
Address_Type: mailing and physical address
Address:
U.S. Geological Survey, Center for Biological Informatics, MS 302,
Room 8000, Building 810, Denver Federal Center
City: Denver
State_or_Province: Colorado
Postal_Code: 80225
Country: USA
Contact_Voice_Telephone: (303) 202-4220
Contact_Facsimile_Telephone: (303) 202-4219
Contact_Electronic_Mail_Address: gs-b-npsveg@usgs.gov
Metadata_Standard_Name: FGDC-STD-001.1-1999 Content Standard for Digital Geospatial Metadata, 1998 Part 1: Biological Data Profile, 1999
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Extensions:
Online_Linkage: http://biology.usgs.gov/fgdc.bio/bionwext.txt
Profile_Name: Biological Data Profile FGDC-STD-001.1-1999